

IN THE CLAIMS

What is claimed is:

- 1-7. (Cancelled)
8. (Currently Amended) A system ~~as in claim 43~~ for preventing ice formation on a surface of a solid object, comprising:
a first electrode disposed on the surface;
a second electrode proximate to the first electrode;
an interelectrode space separating the first and second electrodes, wherein the interelectrode space has a thickness not exceeding 3 mm; and
an AC power source connected to the first and second electrodes, the power source capable of providing an AC voltage with sufficient power to prevent freezing of a liquid water layer in the interelectrode space.
9. (Currently Amended) A system as in claim 843, wherein the interelectrode space has a thickness not exceeding 500 μm .
10. (Currently Amended) A system as in claim 843, wherein the interelectrode space has a thickness in a range of from 5 nm to 100 μm .
- 11-14. (Cancelled)
15. (Currently Amended) A system ~~as in claim 43, wherein the~~ for preventing ice formation on a surface of a solid object, comprising:
a first electrode disposed on the surface;
a second electrode ~~covers~~ covering the first electrode, and the second electrode is being exposed to water and is being porous to water;
an interelectrode space separating the first and second electrodes; and
an AC power source connected to the first and second electrodes, the power source capable of providing an AC voltage with sufficient power to prevent freezing of a liquid water layer in the interelectrode space.
16. (Previously Presented) A system as in claim 15, wherein the second electrode is a mesh comprising metal mesh fibers.
17. (Previously Presented) A system as in claim 16, wherein the metal mesh fibers have a thickness in a range of from 1 to 100 μm .

18. (Previously Presented) A system as in claim 15, further comprising a porous insulator layer disposed between the first electrode and the second electrode, the porous insulator layer forming the interelectrode space and being porous to water.

19. (Previously Presented) A system as in claim 18, wherein the porous insulator layer has a total volume and a pore space, and the pore space occupies between 0 and 100 percent of the total volume.

20. (Previously Presented) A system as in claim 19, wherein the pore space occupies in a range of from 50 to 70 percent of the total volume.

21. (Previously Presented) A system as in claim 18, wherein the first electrode comprises aluminum and the porous insulator layer comprises aluminum oxide.

22. (Previously Presented) A system as in claim 21, wherein the porous insulator layer comprises anodized aluminum.

23. (Cancelled)

24. (Cancelled)

25. (Withdrawn) A system as in claim 44, wherein the power source is capable of providing a DC voltage in a range of from 0.1 to 100 volts.

26. (Withdrawn) A system as in claim 44, wherein the power source is capable of providing a current density in a liquid water layer in the interelectrode space in a range of from 1 to 100 mA/cm².

27. (Withdrawn) A system as in claim 44, wherein the interelectrode space has a thickness not exceeding 3 mm.

28-43. (Cancelled)

44. (Withdrawn) A system of claim 1, wherein the power source comprises a DC power source capable of providing a DC voltage.